Minnesota Pollution Control Agency

Joslyn Superfund Site update: OU1, OU2, OU3 and OU4

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Contents

This Minnesota Pollution Control Agency (MPCA) fact sheet provides a general update on the Joslyn Manufacturing and Supply Co. Superfund Site.

The Joslyn Site is located in the City of Brooklyn Center, just northeast of the intersection of France Avenue and State Highway 100. The site is bounded on the west by Middle Twin Lake, on the north by the Soo Line Railroad tracks and open space, on the south by a residential neighborhood, and on the east by France Avenue and Highway 100. The location of the site is shown below.

Site history

From the 1920s until 1980, a succession of companies treated wooden poles and ties at the Joslyn site. Soil, sediment and groundwater at the site became contaminated with pentachlorophenol (PCP) and polynuclear aromatic hydrocarbons (PAHs), which are constituents of the wood-preservatives used at the site. The site was listed on the National Priorities List (NPL) in 1984. Subsequently, much of the site was successfully remediated so that it could be de-listed from the Permanent List of Priorities (PLP), the state Superfund list, and from the federal NPL. That portion of the site has been redeveloped. The westernmost portion of the site is a wooded/wetland area known as the "West Area" and is private property owned by Joslyn. The investigation and future remediation of the West Area remains under the oversight of the MPCA.

Early remedial actions

After ceasing operations in 1980, Joslyn removed wood-treating solutions and properly disposed them at a hazardous waste facility in 1981. In 1983, the MPCA named Joslyn as a responsible party for the site and requested that Joslyn investigate and remediate the site. The site was placed on the federal Superfund list in 1984, and through an agreement with EPA, the MPCA continues to oversee the site's remediation. Joslyn and the MPCA entered into a remediation agreement in 1985. In 1988, after completing the remedial investigation, Joslyn excavated more contaminated soil and disposed of it in a hazardous waste landfill.

Remedial actions for Operable Units (OUs) 1, 2, 3 and 4

In 1989, following public comment, MPCA issued a Record of Decision (ROD) for the site that documented the selected remedial actions. Distinct elements of the remedial actions are described using the term "operable unit" (OU). For groundwater (OU1 and OU2), the selected remedy includes groundwater pumpout and long-term groundwater monitoring. A recovery system for dense-nonaqueous phase liquid (DNAPL—OU3) was selected. For the remaining contaminated soil (OU4), the remedial actions included on-site biological treatment.

OU1 and OU2: Groundwater

Two aquifers have been identified at the site. The upper aquifer is an unconsolidated, surficial sand aquifer that

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extends from the ground surface to depths of 30 to 80 feet and is comprised of the shallow (OU1) and middle sands (OU2). The lower aquifer consists of the St. Peter Sandstone, the Prairie du Chien, and a buried sand and gravel unit overlying these bedrock units. Over much of the site, the middle confining unit separates the upper and lower aquifer. Remedial actions are required in the upper aquifer. The lower aquifer is routinely monitored, but does not require remedial action.

Since 1989, groundwater pumpout wells have been removing contaminated groundwater from the upper aquifer (OU1 and OU2); thereby controlling lateral and vertical migration of contaminants. As verified by routine monitoring and data analysis, the remedial actions have successfully contained contaminated groundwater within the upper aquifer at the site's downgradient boundary and have prevented downward migration of contaminants. As is typical for groundwater pumpout systems in the Twin Cities metropolitan area, the collected groundwater is discharged to the municipal wastewater-treatment system. The continued operation of these pumpout systems is necessary to control contaminant migration.

OU3: Dense, nonaqueous phase liquid

Near the middle of the site, a subsurface depression in middle confining unit contains a small pool of creosote-like liquid that lies below the groundwater table. In the ROD, this material is described as a dense nonaqueous phase liquid (DNAPL). In 1996, a recovery system began recovering this liquid from the aquifer. To date, 13,500 gallons of DNAPL have been recovered and disposed of off site by incineration. This remedial action has been successful and will continue until the recoverable DNAPL has been removed from the aquifer.

OU4: Contaminated soil

Operable Unit 4 consisted of the visually contaminated soil remaining on site after the early remedial actions. The remedy for OU4 included the excavation and on-site treatment of these soils through biological degradation of contaminants. The ROD also allowed the off-site disposal of soils that could not be treated on site. Biological treatment occurred in batches known as "lifts" in a nine-acre Land Treatment Unit (LTU). Engineered perimeter dikes allowed the collection of

excess precipitation, which was discharged with the water from the groundwater pumpout system. From 1989 through 1998, approximately 85,000 cubic yards of contaminated soil were remediated. The redevelopment of the site provided the final element of the OU4 remedy: closure of the LTU.

Site redevelopment

The site is currently in reuse through the cooperative efforts of Joslyn, Real Estate Recycling (RER, a redevelopment company specializing in previously contaminated land), the City of Brooklyn Center, and the MPCA.

The redevelopment of the Joslyn site was accomplished in three stages and resulted in the France Avenue Business Park. RER also increased the area available for redevelopment by purchasing several small adjacent parcels. The first phase of the redevelopment project was a 200,000-square-foot warehouse facility, completed in 1999, which houses two commercial tenants. The second phase of the redevelopment project was an 110,000-square-foot office/warehouse facility completed in 2002, which houses three commercial tenants. The third phase of the redevelopment project was the redevelopment of an 110,000-square-foot building on an 8½-acre parcel. The new corporate headquarters/office warehouse facility was built on the southern portion of the parcel (five and one-half-acres acquired by RER for the redevelopment). The northerly three acres of the redevelopment parcel consisted of a portion of the former Joslyn site.

Three restrictive covenants have been placed on the Joslyn site to ensure the remedy remains effective. First, no water wells may be constructed on the site. Second, the site is limited to industrial use. Third, rights to access are preserved for state and federal environmental agencies for the purposes of inspection and investigation, and for Joslyn to operate and maintain the remedial actions.

The redeveloped portion of the site was removed from the state Superfund list in 1999 and from the NPL in 2002. However, the West Area was not included in this "partial deletion." Joslyn is now preparing that western portion of the site for remediation.

OU5: West Area

The West Area, the westernmost portion of the site, is located between the redeveloped area and Middle Twin Lake. A site-wide investigation prior to redevelopment found concentrations of polychlorinated dibenzo-p-dioxins and furans (dioxins), common trace contaminants of PCP, in the West Area. With MPCA oversight, Joslyn has completed the investigation of the West Area. These investigations revealed levels of dioxins in soil in *some parts* of the West Area that are higher than the U.S. Environmental Protection Agency's (EPA's) recommended cleanup level and MPCA's soil screening level. Joslyn installed a fence around most of the West Area as an interim action to limit exposure of trespassers to contaminated soil.

Joslyn, with MPCA oversight, is currently evaluating remedial action alternatives. The MPCA has prepared a separate fact sheet, *Joslyn Superfund Site West Area (OU5) update*, to summarize the status of the West Area remedial actions.

Middle Twin Lake

The mid-1980s investigations found that the site had not adversely impacted Middle Twin Lake. However, after dioxins had been found in the West Area, the MPCA asked Joslyn to reevaluate the finding that the site had not adversely impacted the lake — first, through an investigation of fish tissue and second, through an investigation of sediment.

Dioxins are ubiquitous in the environment as a result of natural processes and human activities, such as trash burning, and are often found in background soils and sediment at concentrations in the low part-per-trillion (ppt) range. They are persistent, and fish have been shown to accumulate dioxins from water, sediments, and through the aquatic food chain. Since dioxins are found nearly everywhere, Joslyn's investigations of Middle Twin Lake included the collection and evaluation of samples from nearby reference lakes. These reference lake samples allowed MPCA to determine whether the dioxin concentrations found in Middle Twin Lake differed from those found in other Twin Cities Metro Area lakes.

Fish tissue samples collected from Middle Twin Lake showed that, of the contaminants of concern at the site,

only dioxins are present at potentially significant concentrations. However, the concentrations of dioxins in fish tissue from Middle Twin Lake do not differ significantly from concentrations found by the EPA in samples of fish from 58 lakes in Minnesota. The overall conclusion of this study is that existing fish consumption advisories for mercury and PCBs for Middle Twin Lake are protective for dioxins. (Minnesota Department of Health, "Health Consultation Middle Twin Lake Fish Tissue Study," June 2006).

In 2007, composite sediment samples were collected from two locations in Middle Twin Lake — one adjacent to the Joslyn site and the second adjacent to a public beach. Separate analysis of these samples by both Joslyn and the MPCA confirmed that the dioxin concentrations were in the low parts-per-trillion range and, more importantly, were 10 times lower than the conservative screening value established by the MDH for this study. Based upon the results of this sediment study, and coupled with the results of studies conducted previously, the MDH and the MPCA find that these data support the conclusions that the site has not had an adverse impact on Middle Twin Lake and that further assessment of Middle Twin Lake is not warranted.

Additional resources

For more information abouit remediation work at the Joslyn Manufacturing and Supply Co. Superfund Site, contact MPCA project manager Steven Schoff (phone 651-757-2701, e-mail Steven.Schoff@state.mn.us).